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Schneider

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(54) **VEHICLE ENCLOSURE AND METHOD AND SYSTEM OF INSTALLATION**

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See application file for complete search history.

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(56) **References Cited**

U.S. PATENT DOCUMENTS

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US 2014/0300129 A1 Oct. 9, 2014

1,242,108	A	10/1917	Buob, Sr.	
1,562,190	A *	11/1925	Reiter	24/671
2,789,863	A *	4/1957	Shimabukuro	296/77.1
3,135,820	A	6/1964	Hallett, Jr. et al.	
3,534,446	A	10/1970	Silver	
3,689,962	A	9/1972	Erickson	
3,709,553	A *	1/1973	Churchill et al.	296/145
3,784,235	A	1/1974	Kessler et al.	
3,834,756	A	9/1974	Grell	
3,851,357	A	12/1974	Ribich et al.	
4,013,315	A	3/1977	West	
D245,838	S *	9/1977	Messinger	D12/402

(Continued)

FOREIGN PATENT DOCUMENTS

EP 2263491 12/2010

OTHER PUBLICATIONS

YKK Automotive Fastener Solutions Sep. 14, 2012.*

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F16B 47/00 (2006.01)

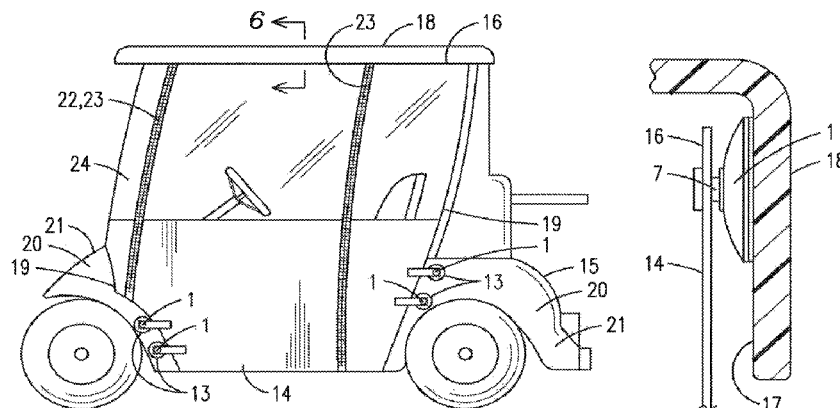
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(57) **ABSTRACT**

A vehicle enclosure (14) and method and system of installation using an adhesive-backed attachment device (1) having a base (4) with an adhesive backing (10) and a stud (12) or a socket (2) that engages a conventional snap (8). The adhesive-backed attachment device is preferably flexible so that it may be attached to uneven surfaces of a vehicle, such as a golf cart (15). The adhesive-backed attachment device eliminates unsightly brackets, drilling or screwing into the golf cart and cuts down on installation time of golf cart enclosures. The studs and sockets may also be integrated into a new roof (14) for retrofitting an existing golf cart.

5 Claims, 3 Drawing Sheets



(56)

References Cited

U.S. PATENT DOCUMENTS

4,098,536	A *	7/1978	Mills	296/77.1	6,979,044	B2	12/2005	Tyrer	
4,654,934	A	4/1987	Hasegawa		7,210,492	B2	5/2007	Gerrie et	
4,773,694	A *	9/1988	Gerber	296/77.1	7,213,864	B2	5/2007	Gasper	
D301,567	S *	6/1989	Burke	D11/220	D557,191	S	12/2007	Curtis, Jr. et al.	
5,014,400	A	5/1991	Ban		7,354,092	B2	4/2008	Showalter et al.	
5,119,278	A	6/1992	Watson		D595,743	S	7/2009	Neumann	
D332,437	S	1/1993	Lay, Jr.		7,560,003	B2	7/2009	Naughton et al.	
5,217,275	A *	6/1993	Ridge	296/77.1	7,740,300	B2 *	6/2010	Marsh et al.	296/83
D350,501	S *	9/1994	Schriever	D11/220	D626,451	S	11/2010	Helwig et al.	
5,429,404	A	7/1995	King, Sr.		D626,452	S	11/2010	Helwig et al.	
5,588,690	A *	12/1996	Showalter	296/77.1	7,832,788	B2	11/2010	Marsh et al.	
5,678,882	A *	10/1997	Hammond	296/146.1	7,854,463	B1 *	12/2010	Neumann	296/83
5,788,317	A *	8/1998	Nation	296/141	2002/0096906	A1 *	7/2002	Tyrer	296/79
D410,412	S	6/1999	Tominaga et al.		2002/0145302	A1	10/2002	Winkler	
6,132,089	A	10/2000	Galomb et al.		2002/0167192	A1	11/2002	Tyrer et al.	
6,439,637	B1	8/2002	Tyrer		2004/0239140	A1 *	12/2004	Feinberg	296/77.1
D466,439	S *	12/2002	Wagner et al.	D11/220	2005/0093331	A1	5/2005	Moskos et al.	
D473,158	S	4/2003	Matsui et al.		2006/0071044	A1 *	4/2006	Stanfield et al.	224/274
D473,820	S	4/2003	Ming		2006/0113817	A1 *	6/2006	Gasper	296/77.1
D477,246	S *	7/2003	Takeda	D11/220	2006/0125279	A1 *	6/2006	Tyrer	296/100.14
RE38,272	E	10/2003	Nation		2006/0169864	A1	8/2006	Salerno	
D481,654	S	11/2003	Matsui et al.		2006/0290163	A1 *	12/2006	Showalter et al.	296/102
6,916,059	B2	7/2005	Feinberg		2008/0281180	A1	11/2008	Choe et al.	
					2009/0183808	A1 *	7/2009	Sappington et al.	150/159
					2011/0001330	A1 *	1/2011	Hirneise	296/77.1
					2011/0233957	A1 *	9/2011	Sams	296/79

* cited by examiner

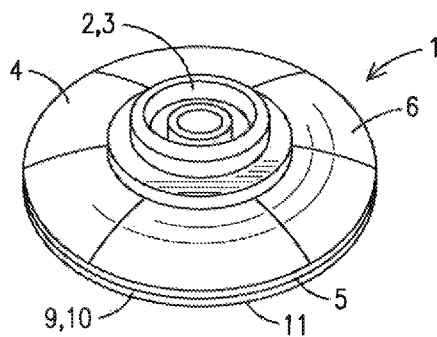


FIG. 1

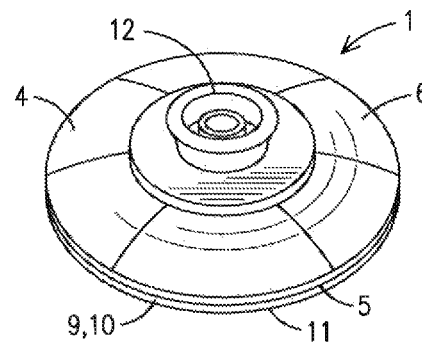


FIG. 2

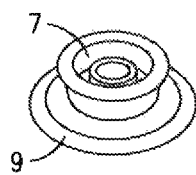


FIG. 3
Prior Art

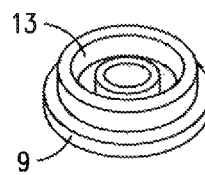


FIG. 4
Prior Art

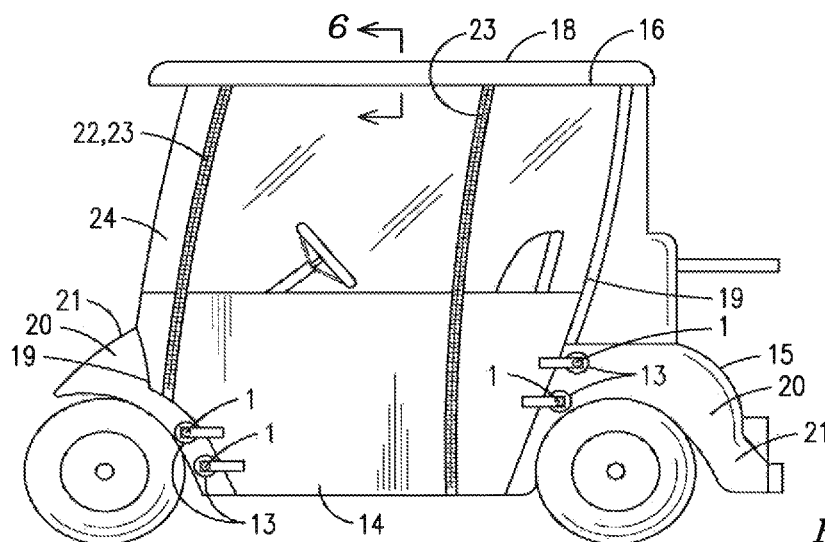


FIG. 5

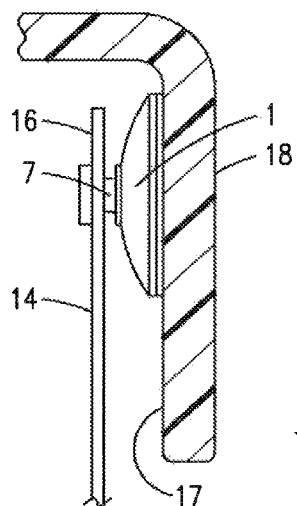


FIG. 6

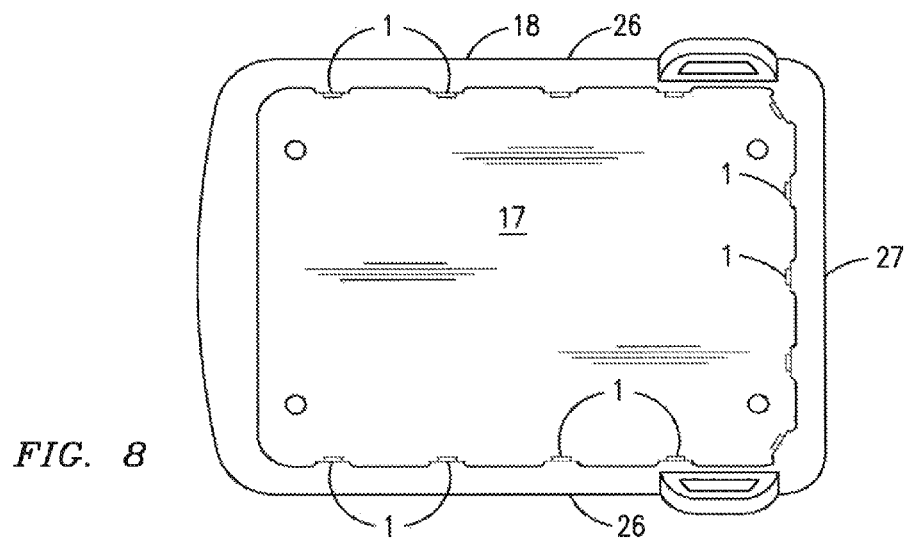


FIG. 8

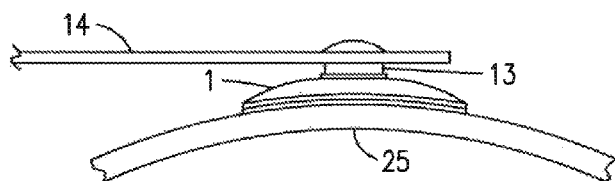


FIG. 7

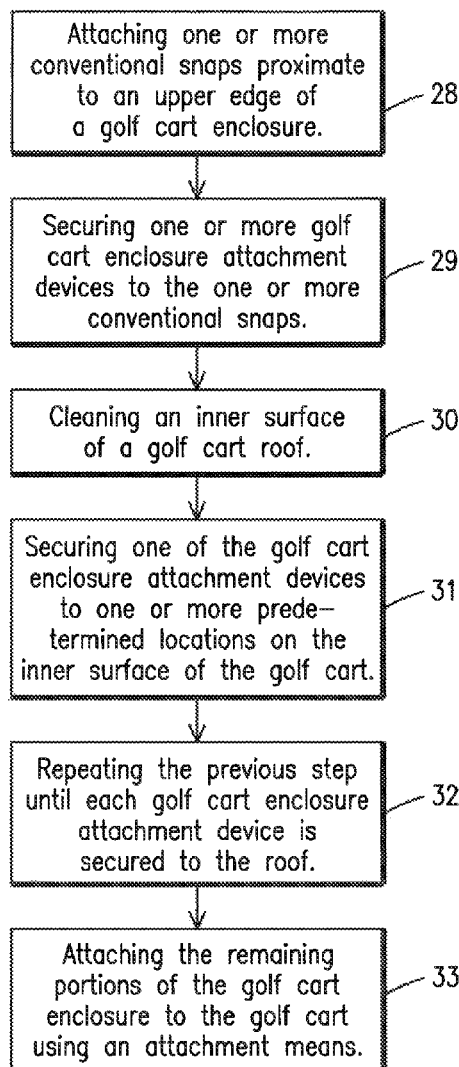


FIG. 9

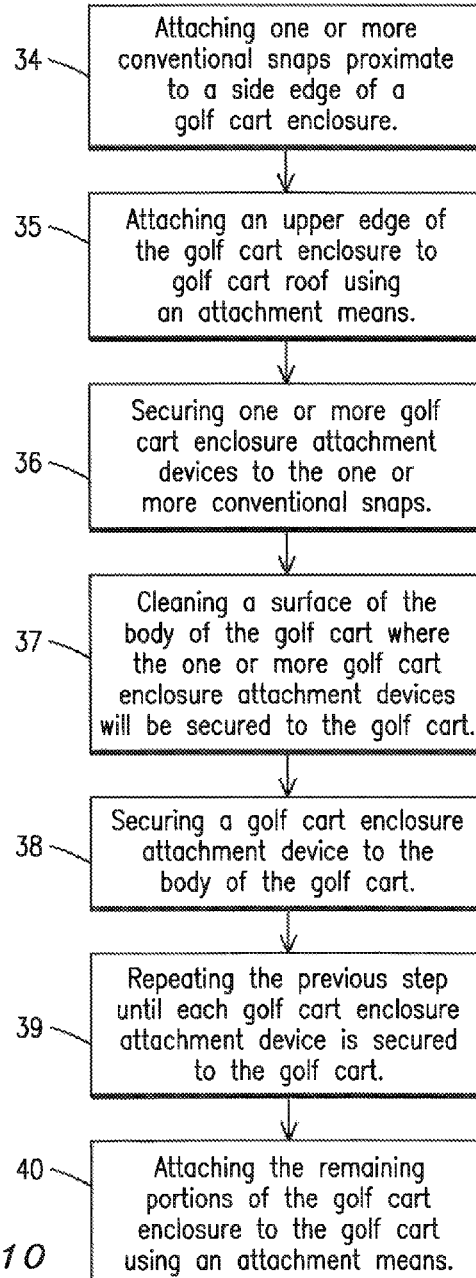


FIG. 10

VEHICLE ENCLOSURE AND METHOD AND SYSTEM OF INSTALLATION

CROSS-REFERENCE TO RELATED APPLICATION

This application is a continuation of prior U.S. patent application Ser. No. 13/156,372, filed on Jun. 9, 2011, which is hereby incorporated by reference in its entirety.

BACKGROUND OF THE INVENTION

This invention relates to enclosures for vehicles, and more particularly to an enclosure having an adhesive-backed fastener that is used in conjunction with conventional snaps for quickly and easily installing the enclosure on a vehicle.

Conventional enclosures, such as enclosures for golf carts, are attached to golf carts using a combination of hook and loop fasteners and/or snaps. Conventional snaps require an installer to drill holes into the structure of the golf cart in order to attach each snap to the golf cart with a screw. Tracks having C-shaped channels are also commonly used to attach an upper edge of a golf cart enclosure to a roof of a golf cart. A golf cart enclosure is attached to the track by sliding a cord sewn into the upper edge of the golf cart enclosure into the C-shaped channel. The tracks are attached to the roof using screws or nuts and bolts. This requires designing the brackets so screw holes on the brackets line up with existing screw holes on the roof. Installation of the tracks is time consuming and costly because it often requires some dismantling of the roof and the roof support structure to gain access to existing screw holes to install the C-shaped channels (usually expensive aluminum). Furthermore, conventional installations wherein holes are drilled into any portion of a golf cart will void most golf cart manufacturers' warranties.

Therefore, a need exists for a vehicle enclosure and method of installation that will allow a user to quickly install and secure the enclosure to a vehicle without having to drill any holes into the vehicle or use brackets to attach the enclosure to the roof of a golf cart.

The relevant prior art includes the following references:

Patent No.	Inventor	Issue/Publication Date
(U.S. Patent References)		
D626,452	Helwig et al.	Nov. 02, 2010
D626,451	Helwig et al.	Nov. 02, 2010
7,560,003	Naughton et al.	Jul. 14, 2009
D557,191	Curtis, Jr. et al.	Dec. 11, 2007
7,213,864	Gaspar	May 08, 2007
7,210,492	Gerrie et al.	May 01, 2007
6,979,044	Tyrer	Dec. 27, 2005
6,916,059	Feinberg	Jul. 12, 2005
RE38,272	Nation	Oct. 14, 2003
6,439,637	Tyrer	Aug. 27, 2002
6,132,089	Galomb et al.	Oct. 17, 2000
5,429,404	King, Sr.	Jul. 04, 1995
5,014,400	Ban	May 14, 1991
4,654,934	Hasegawa	Apr. 07, 1987
3,851,357	Ribich et al.	Dec. 03, 1974
3,784,235	Kessler et al.	Jan. 08, 1974
3,709,553	Churchill et al.	Jan. 09, 1973
1,242,108	Buob, Sr.	Oct. 02, 1917
(Foreign Patent, References)		
EP2263491	Hayashi	Dec. 22, 2010

SUMMARY OF THE INVENTION

The primary object of the present invention is to provide a vehicle enclosure and method of installation that will allow a user to quickly install and secure the enclosure to a vehicle without having to drill any holes into the vehicle.

Another object of the present invention is to provide a vehicle enclosure and method of installation that will allow a user to quickly install and secure the enclosure to a vehicle without having to use brackets to attach the enclosure to the roof of the vehicle.

The present invention fulfills the above and other objects by providing an enclosure and method of installation comprising an enclosure having a plurality of adhesive-backed attachment devices, each having a stud or a socket that engages a conventional stud or a conventional socket of a conventional snap. The adhesive-backed attachment devices are preferably flexible so that the adhesive-backed attachment devices may be attached to uneven surfaces of a vehicle, such as rounded fenders or curved roofs of a golf cart. The adhesive-backed attachment devices eliminate unsightly brackets and decreases installation time of the enclosure. For example, an installer installing an enclosure having conventional studs and/or conventional sockets secured to the outer perimeter of the enclosure can attach adhesive-backed attachment devices to each conventional snap and conventional stud. Then, the installer can simply peel a protective layer off a rear surface of each adhesive-backed attachment device, thereby exposing an adhesive layer, and attach one-by-one each adhesive-backed attachment device to a vehicle, such as a golf cart. The installer can start on one corner of an upper edge of the enclosure and simply move along the upper edge peeling and sticking each adhesive-backed attachment device to the appropriate spot of the roof of the golf cart and then to the body of the golf cart. The studs and sockets may also be integrated into the vehicle, such as a new golf cart or into a new roof for retrofitting an existing golf cart.

The above and other objects, features and advantages of the present invention should become even more readily apparent to those skilled in the art upon a reading of the following detailed description in conjunction with the drawings wherein there is shown and described illustrative embodiments of the invention.

BRIEF DESCRIPTION OF THE DRAWINGS

In the following detailed description, reference will be made to the attached drawings in which:

FIG. 1 is a top perspective view of an adhesive-backed attachment device of the present invention having a socket as an engagement means;

FIG. 2 is a top perspective view of an adhesive-backed attachment device of the present invention having a stud as an engagement means;

FIG. 3 is a top perspective view of a conventional stud of a conventional snap;

FIG. 4 is a top perspective view of a conventional socket from a conventional snap;

FIG. 5 is a side view of a vehicle enclosure of the present invention attached to a golf cart using adhesive-backed attachment devices;

FIG. 6 is a partial cross-section view along line 6-6 of FIG. 5 of a vehicle enclosure of the present invention secured to a golf cart roof;

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FIG. 7 is a cutaway side view of a vehicle enclosure of the present invention attached to a curved surface using a conventional socket and a flexible adhesive-backed attachment device;

FIG. 8 is a bottom view of an inner surface of a golf cart roof having adhesive-backed attachment devices integrated therein;

FIG. 9 is a flow chart illustrating a method of installation of a vehicle enclosure of the present invention on a roof of a golf cart; and

FIG. 10 is a flow chart illustrating a method of installation of a vehicle enclosure of the present invention on a body of a golf cart.

DESCRIPTION OF THE PREFERRED EMBODIMENTS

For purposes of describing the preferred embodiment, the terminology used in reference to the numbered accessories in the drawings is as follows:

1.	adhesive-backed attachment device
2.	socket
3.	engagement means
4.	base
5.	rear surface
6.	front surface
7.	conventional stud
8.	conventional snap
9.	securing means
10.	adhesive
11.	peel away cover
12.	stud
13.	conventional socket
14.	vehicle enclosure
15.	golf cart
16.	upper edge
17.	inner surface
18.	roof
19.	side edge
20.	outer surface
21.	body
22.	attachment means
23.	zipper
24.	sleeve
25.	curved surface
26.	side edge
27.	rear edge
28.	attaching conventional snap to enclosure
29.	attaching enclosure attachment device to conventional snap
30.	cleaning surface
31.	securing the enclosure attachment device to surface
32.	repeating previous step
33.	attaching remaining portions of enclosure
34.	attaching conventional snap to enclosure
35.	attaching upper edge to roof
36.	attaching enclosure attachment device to conventional snap
37.	cleaning surface
38.	securing the enclosure attachment device to surface
39.	repeating previous step
40.	attaching remaining portions of enclosure

With reference to FIG. 1, a top perspective view of an adhesive-backed attachment device 1 of the present invention having a socket 2 as an engagement means 3 is illustrated. The adhesive-backed attachment device 1 comprises a base 4 having a rear surface 5 and a front surface 6. The socket 2 extends upward from a central location of the front surface 6 of the adhesive-backed attachment device 1. The socket 2 is attachable to a conventional stud 7 of a conventional snap 8, as illustrated in FIG. 3. A securing means 9, such as adhesive 10, is located on the rear surface 5 of the base 4 to allow a user to secure the adhesive-backed attachment device 1 to a sur-

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face, such as a golf cart. The adhesive 10 is preferably covered by a peel away cover 11. The expanded surface area provided by the larger size of the base 4 provides additional contact area between the base 4 and a surface that the adhesive-backed attachment device 1 is being secured to. The adhesive-backed attachment device 1 may be made of a rigid material, such as plastic, metal and so forth, or of a flexible material, such as rubber, silicone and so forth, to allow a user to attach the adhesive-backed attachment device 1 to a curved surface, as illustrated in FIG. 7.

With reference to FIG. 2, a top perspective view of an adhesive-backed attachment device 1 of the present invention having a stud 12 as an engagement means 3 is illustrated. The adhesive-backed attachment device 1 comprises a base 4 having a rear surface 5 and a front surface 6. The stud 12 extends upward from a central location of the front surface 6 of the adhesive-backed attachment device 1. The stud 12 is attachable to a conventional socket 13 of a conventional snap 9, as illustrated in FIG. 4. A securing means 9, such as adhesive 10, is located on the rear surface 5 of the base 4 to allow a user to secure the adhesive-backed attachment device 1 to a surface, such as a golf cart. The adhesive 10 is preferably covered by a peel away cover 11.

With reference to FIG. 3, a top perspective view of a conventional stud 7 of a conventional snap 9 is illustrated.

With reference to FIG. 4, a top perspective view of a conventional socket 13 from a conventional snap 9 is illustrated.

With reference to FIG. 5, a side view of a vehicle enclosure 14 of the present invention attached to a golf cart using adhesive-backed attachment devices 1 is illustrated. An upper edge 16 of the vehicle enclosure 14 is attached to an inner surface 17 of a golf cart roof 18 using conventional studs 7 and adhesive-backed attachment devices 1, as illustrated in FIG. 6. Side edges 19 of the vehicle enclosure 14 are attached to an outer surface 20 of a body 21 of the golf cart 15 using conventional sockets 13 and adhesive-backed attachment devices 1. The vehicle enclosure 14 is also attached to the golf cart 15 using attachment means 22, such as conventional snaps 8, hook and loop fasteners, zippers 23, sleeves 24 and so forth.

With reference to FIG. 6, a partial cross-section view along line 6-6 of FIG. 5 of a vehicle enclosure 14 of the present invention secured to a golf cart roof 18 is illustrated. An upper edge 16 of the vehicle enclosure 14 is attached to an inner surface 17 of the golf cart roof 18 using conventional studs 7 and adhesive-backed attachment devices 1.

With reference to FIG. 7, a side cutaway view of a vehicle enclosure 14 of the present invention attached to a curved surface 25 using a conventional socket 13 and a flexible adhesive-backed attachment device 1 is illustrated. The flexible adhesive-backed attachment device 1 may also be user inside curves, such as an inner corner of a golf cart roof 18.

With reference to FIG. 8, a bottom view of an inner surface 17 of a golf cart roof 18 having adhesive-backed attachment devices 1 of the present invention integrated therein. The adhesive-backed attachment devices 1 are integrated into side edges 26 and a rear edge 27 of the golf cart roof 24 to allow a user to easily secure a vehicle enclosure 14 to the roof using conventional snaps 8 and without having to modify the roof 18.

With reference to FIG. 9, a flow chart illustrating a method of installation of a vehicle enclosure of the present invention on a roof of a golf cart is shown. First, conventional snaps are attached proximate to an upper edge of a vehicle enclosure 28. Then, adhesive-backed attachment devices are attached to the conventional snaps 29. Next, an inner surface of the roof is cleaned 30. Then, an adhesive-backed attachment device is

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secured to the inner surface of the roof using a securing means 31. Next, the previous step is repeated until each adhesive-backed attachment device is secured to the inner surface of the roof 32. By attaching the adhesive-backed attachment devices to the roof while the adhesive-backed attachment devices are attached to the conventional snaps and the golf cart enclosure, a user does not have to measure out attachment points on the roof and can instead eyeball the installation by starting at one corner of the vehicle enclosure and working along the upper edge of the enclosure attaching each adhesive-backed attachment device one-by-one to the roof. Finally, the remaining portions, such as side edges, bottom edges, etc., of the vehicle enclosure are attached to the golf cart using an attachment means, such as adhesive-backed fasteners of the present invention, conventional snaps, hook and loop fastener, zippers, sleeves and so forth 33.

With reference to FIG. 10, a flow chart illustrating a method of installation of a vehicle enclosure of the present invention on a body of a golf cart is shown. First, conventional snaps are attached proximate to a side edge of a vehicle enclosure 34. Then an upper edge of the vehicle enclosure is attached to a roof of the golf cart using an attachment means, such as adhesive-backed fasteners of the present invention, conventional snaps, roof cover, rails, clips and so forth 35. Next, adhesive-backed attachment devices are attached to the conventional snaps 36. Next, the surface of the golf cart body is cleaned 37. Then, one of the adhesive-backed attachment devices is attached to the body of the golf cart using a securing means 38. Next, the previous step is repeated until each adhesive-backed attachment device is attached to the surface of the body 39. Finally, any remaining unattached portions of the golf cart enclosure, such as side edges, bottom edges, etc., are attached to the golf cart using an attachment means, such as adhesive-backed fasteners of the present invention, conventional snaps, hook and loop fastener, zippers, sleeves and so forth 40.

It is to be understood that while a preferred embodiment of the invention is illustrated, it is not to be limited to the specific form or arrangement of parts herein described and shown. It will be apparent to those skilled in the art that various changes

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may be made without departing from the scope of the invention and the invention is not to be considered limited to what is shown and described in the specification and drawings.

What is claimed is:

1. A golf cart enclosure for use only with a golf cart, the enclosure enclosing a majority of the golf cart, the enclosure comprising:
 - at least one conventional snap located on the golf cart enclosure, said golf cart enclosure that encloses the majority of the golf cart;
 - at least one secure-adhesive backed attachment device having a base, said base having a rear surface and a front surface, wherein said at least one secure-adhesive backed attachment device is made of a flexible material;
 - an engagement means extending upward from a central location on the front surface of the base for engaging the at least one snap;
 - a securing means comprising a secure-adhesive located on the rear surface of the base for securely attaching the at least one secure-adhesive backed attachment device to a surface on the golf cart; and
 - a peel away cover for protecting the secure-adhesive of the secure-adhesive backed attachment device, said peel away cover for protecting the secure-adhesive prior to affixing said device to the golf cart.
2. The golf cart enclosure of claim 1 wherein: said engagement means is a stud for engaging a conventional socket of the conventional snap.
3. The golf cart enclosure of claim 1 wherein: said engagement means is a socket for engaging a conventional stud of the conventional snap.
4. The golf cart enclosure of claim 1 wherein: said securing means is secure-adhesive located on the rear surface of the base.
5. The golf cart enclosure of claim 1 wherein: said base of the secure-adhesive backed attachment device has a width that is greater than a width of the engagement means.

* * * * *